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Title of Invention:

**SUPPLEMENTAL WATER SUPPLY FOR TOILETS,
FOR FIRE FIGHTING, AND STRATEGIES FOR
CONSERVATION OF THE DRINKING WATER**

Note: 1. There is no government assistance on this invention, hence, the right of the inventor on this idea is full.
2. No cross-reference to related application

Background Of The Invention

0001 This new technology aims to relieve the problems of inadequate water supply particularly in thickly populated places dependent on public water supply. Water has been always abundant and will always be. It is just a matter of how pure is the water that man wants to use. Man's requirement of high quality make water become very scars. Distilled or pure water is very scars and very costly to produce because it requires heat energy and equipment to produce it. Rainwater is a distilled water, but then, it is mixed with various adulterating and polluting matter from the atmosphere that mixed with the clouds. The underground water contains various minerals needed by the vegetation to grow and also needed by humans to drink in order to grow their bones and muscles. But then again, the underground water is mixed with digested waste, fermented matter, toxic chemicals, man-made nuclear waste, and cancerous materials which were forced to sink into the Earth by the rain water, thereby, the underground water is not fit for drinking or bathing, or washing clothes, or gardening. Hence, *it is again the kind of water quality that man is*

willing to tolerate for his various kinds of needs, such as, for drinking, bathing, watering the garden, washing clothes, fire fighting, and for flushing out the toilet. By analysis of these needs of man, it is sure that the drinking water requires the purist or cleanest quality of water possible, while fire fighting and flushing out the toilet require only a very low quality of water wherein even the Sea Water is fit to flush-clean the toilet bowl and to put out the fire. It is therefore hereby imperatively emphasized that a separate pipeline is built getting into the building and into the toilets to supply low grade of water in order the to flush/clean the toilet bowl and for irrigating the plants.

0002 In the prior art, it has been the standard water supply systems, in Cities, in downtown Municipalities, and *in high density human habitation places which are dependent upon the water district*, wherein, aside from serving to quench thirst, the high quality drinking/potable water supply is also supplied to the toilet to flush/clean the toilet bowl. Of course in the rural areas/farms, where spring water and clean subterranean water are the only water available for all the needs the farmers, -- the subterranean water (serving as drinking water) is also used to flush the toilet. The present water supply system in high density communities, is that only one kind, the potable water-supply pipe, is constructed and connected into the water system of the houses/buildings and to the fire hydrants of the community, and likewise only one sewer discharge-pipe is constructed getting out of the houses/ buildings. This present water supply system *means that the high quality clean drinking/potable water is used for all the water requirements of the houses and buildings, for flushing the toilets, and for fire fighting*. This present water supply system means that all the costly human efforts and costly consumption of electric power to produce clean potable drinking water are also the same kind and equal expenses of *costly human efforts and costly electric power being consumed for every gallon of water used just only to flush out the toilets and to put out the fires*. This way of spending the hard earned human time and energy, and spending the hard earned electric power to clean

the toilet bowl is, by all means of logic, *a very irresponsible and outrageous act of mismanagement, misconduct, and more so because it digs very deep into the hard earned money reserves of the water consumers.* Further, this kind of mismanagement and mis-engineering mentality has been the funnel of extravagant sinful/corrupt expenses of the Tax Payer's money to pay the extravagant salaries of government officials, who disservice the consumers, and who confine or limit themselves within this kind of *mis-engineering and/or mismanagement without advancing the science of the water supply system*, and which has been the hook that has been pushing the various government officials and big private corporate officials to the corner of squabbling in a tug-of-war against other regional entities trying to take a fair share of the water from a river and further trying to press on the costly technology of desalination/recycling of waste water. Think of the terrible efforts, time consuming, and so much money spent for cleaning the water, filtering the water, chlorinating the water, for holding expensive conferences, board meetings, bribing the legislators, and delivering the water thru a very clean pipeline, -- only just to flush-clean the toilet bowl. *These various un-Holy activities are being paid for by the poor water consumers and the rate payers. Think of the tremendous awesome benefits if such terrible efforts and expenses were saved and instead used/spent to produce foods and to teach the children in religious trade schools.*

0003 *It is therefore hereby imperatively emphasized that the toilet is flushed clean with a low-grade water particularly in high density human habitation places that are dependent upon a public water supply, or where water is scarce. This means a separate water supply pipeline is constructed from the outside sources going into the buildings and into all toilets and to the gardens, and wherein such separate toilet pipeline is tapped/connected to a separate source of low grade water, such as, the water deep-wells for subterranean or underground waters, and the recycled water. Further, for purposes of water conservation, it is hereby imperatively emphasized that the waste water used for bathing and for cloth washing are deposited into*

a recycling-filtration-septic tank constructed within the proximity of a building or on each floor of a building and then pumped out by a second water pump, and then deposit the recycled water into the toilet supply water tank -- in order to augment water supply for flushing the toilet bowl, to conserve water, and to save energy because the recycle tank, unlike the deep-well, is just on the ground at a low water head for the second water pump. A separate water treatment tank is also constructed within the property limits in order to chlorinate or treat the subterranean water so that it can be used for washing clothes, or for bath.

0004 It should be noted that the rivers can only supply so much and in many cases, the rivers are dried during summer. Many regions of the world are vast deserts and many communities in those lands cannot have enough water and paying so much money for water extracted from underground or being delivered on a long distance haul, and some supplies are desalinated from the seawater. Hence, it is *very imperative that the clean drinking water is conserved to the maximum in the strictest discipline, wherein, the drinking/potable water is not allowed to flush or wash the toilet, and the underground water and the recycled water is used to the maximum.* This invention advocates to free mankind from the constraints of water supply shortages which are caused by the increasing demand of the exponential progression of population growth in all cities around the world. Water resources, such as the rivers, do not increase, but due to population growth the area of the farmlands must increase to supply the required food and the farms will need more water more than ever. The money saved by conservation is better spent in a holy purpose to educate the public officials and the children in the public schools in matters of the Holy Bible and of the Ten Commandments instead of fighting for a share of the river water in competition against the farmers. *It is a mortal sin to dry the farms just to be able to divert the river water for the extravagant use of the city. Likewise, it is catastrophic to remove the farmers out of the farms. In fact, the city people should go to the farms to help the farmers in the food production.*

Brief Summary Of The Invention

0001 1. Accordingly, in relief of the aforesaid problems, summing up all the ideas, this new invention is created for the following objectives and missions:

- a. To solve the nagging problem of ever increasing shortage of water supply due to population growth, increase in economic infrastructures, climatic factors, changing cultures, and public demand.
- b. To solve the nagging problem of ever increasing prices of water supply.
- c. To solve the nagging problem of having to build aqueducts across mountains and across vast desert lands to bring-in the water to the city from a distant river.
- d. To solve the nagging problem of having to squabble for a share of the water from the river out of the share of neighboring states/counties, and *against the farmers*.
- e. To save the time, efforts, and money wrongly spent to clean the water that is unwiseley used only just to flush out the toilet bowl.
- f. To create a source of money saved from the wrong water management to serve as budget for a more Holy purpose, such as, religious education, etc.

0002 2. It is further the objectives of this invention:

- a. To introduce new technologies and municipal/city-ordinance/management strategies that saves the clean drinking water from being used to flush out the toilet bowl.
- b. To introduce a new technology that makes use of the subterranean, the underground waters and the recycled water, to flush the toilet and to water/irrigate the backyard gardens, and carwash, most imperatively emphasized in urban communities *that are dependent upon the water district*.
- c. To introduce a new technology and municipal/city-ordinance/management that makes use of the recycled sewer water back to flush the toilet.

- d. To introduce a new technology that saves terrible efforts and expenses for cleaning drinking water just to flush-clean the toilet bowl.
- e. To create and introduce a new design for house plumbing that minimize the efforts of cleaning too much unnecessary volume of drinking water supply.
- f. To introduce a new technology to privately recycle the bath and the cloth washing waste water back to flush the toilet.
- g. To introduce a means to save energy from the water processes.

0003 3. To attain the foregoing objectives, various new inventions, new designs, new concepts, and new configurations have been created, and also new devices created and new management strategies created in support of this new inventions, all of which serve as highlights of this invention and which makes this invention different and distinct from the prior arts, and hereby applied for Proprietary Rights Protection, --- such new inventions are the following:

- a. A newly created strategy for water conservation wherein the toilet is flushed with low grade/subterranean/recycled water by constructing/installing a private/public water deep-well specifically within the yard or inside/under of every residential house and of every commercial/government building, of every park / golf course, *imperatively emphasized particularly in high density urban communities that are depended upon a public water entity, same deep-well is imposed as a primary requirement among the mechanical parts of all the old and new facilities/houses/buildings/golf courses, etc., and further same being imperatively emphasized to be an engineering requirement in the approval of every Building Permits for all new constructions.*
- b. A newly created strategy for water conservation wherein a *pipeline that is separate and distinct from the drinking water pipeline, is constructed/installed interconnecting the low grade water sources to the toilets, which is imperatively emphasized, particularly in urban communities that are dependent upon a public water entity, as among the requirements*

for mechanical parts of all old and new houses/buildings, etc., primarily to prevent the drinking water from being wasted to flush-clean the toilet bowl.

- c. A newly created strategy for water conservation, wherein, a storage/sedimentation/chlorination tank is constructed within the property limits of every facility just so that the underground water may be used for bathing and washing clothes.
- d. A newly created strategy for water and energy conservation, wherein, a storage/digestion/septic/filtration/sedimentation tank is constructed within the property limits of every facility just so that the waste water used for bathing and washing clothes will be recycled to be used to flush the toilet.
- e. A newly created strategy for water conservation, wherein a municipal/city and/or national regulation/ordinance/law is enacted requiring, under penalty of law, installation and/or construction of water private/public deepwells together with water storage tank within the yard or inside old and new facilities/houses/buildings, thereby making the deep-well and its storage tank as an imperatively inseparable part of all houses/buildings.
- f. A newly created strategy for water conservation, wherein a municipal/city/national ordinance/law is enacted imperatively requiring, under penalty of law, all owners of every house/building/facility, – to install a private water deep-well having a water pump and a storage tank, and to supply themselves with subterranean/underground or recycled water to flush clean their toilet bowls, for washing, and for irrigation, primarily to prevent the drinking water from being wasted.
- g. A newly created strategy for water conservation, wherein, a municipal/city/national ordinance/law and/or regulation prohibiting the use of processed clean drinking/potable water for flushing/cleaning the toilet bowl, for washing cars/equipment/patios/driveways, and for watering irrigating plants, under penalty of law.

- h. A newly created strategy for water conservation, wherein, a municipal/city/national ordinance/law and/or regulation enacted *imposing penalty in all forms including money and/or imprisonment against persons or people who use drinking/potable water for flushing/cleaning the toilet bowl*, for washing cars/equipment/patios/driveways, and for watering/irrigating plants, and against irrigating golf courses.
- i. A new water-main supply pipeline constructed, separate and distinct from the drinking main pipeline, to deliver recycled/subterranean water from the sewer treatment plant to the housing areas and to the commercial or government building areas for purposes of toilet use.
- j. A new recycled-water supply pipeline constructed, separate and distinct from the drinking supply pipeline, to deliver recycled/subterranean water from the city water main supply pipeline to each house/building and into each toilet.
- k. A new plurality of municipal water deep-well having a water pump constructed into subterranean waters/aquifers and connected to the main pipeline to inject subterranean water into the main pipeline for consumption in the residential/communities toilets, gardens, parks, and farms.
- l. A new plurality of elevated water storage tanks constructed in the communities in various elevations corresponding to the general level of toilet tanks around its immediate vicinity at even spacing to store/contain recycled water and subterranean water ready for fire fighting and toilet flushing, as a means of saving energy and conserving water.
- m. A new private/residential recycling device for cleaning the waste waters from bathing and cloth washing to conserve water for the toilet flushing and saving energy.
- n. A new means of *saving a lot of energy* used in pumping the recycled or subterranean water by avoiding to work against high pressure water, by *constructing the storage tank at a very low elevation* just so that water will just transfer slowly by gravity into the toilet tank *which is not pressurized*.

- o. A new kind of metering device that *shuts down the drinking water pipeline for each household* to limit the allowable volume of drinking water usage each day corresponding for each person member of the each household. Usage beyond the allowable limit shall be punishable by law.
- p. A newly created strategy for water conservation, wherein, a Municipal or City Ordinance ordering the Water District to pay the private residents/citizens at a good price for every gallon of water that they can pump from their own private Deep Well and injected into the main public pipeline, as a way of incentives for the participating private sector to help solve the water shortage.
- q. A newly created strategy for water conservation, wherein, a Municipal or City Ordinance ordering the neighborhood or the private sector to pay at a good price for the subterranean water delivered by their private neighbors into their houses or facilities.
- r. A newly created strategy for water conservation, wherein, a law is enacted for *improving the culture of man* and changing the attitude of man towards the variable grade of water as applied or used in the various grades of the needs of man.
- s. A new ordinance or a new law enacted forcibly enforcing a rationing at a certain fix quota limiting the allocation of drinking water supplied to a household or to a building at a certain quantity of gallons for every person living/using a building, *by mechanical control devices*, in a bi-weekly or monthly basis or in an appropriate periodic basis.

Brief Description Of The Several Views Of The Drawings

Fig. 1 -- illustrates a provision for a water deep-well in a house/backyard that supply subterranean water thru a low-grade water pipeline to the toilet bowl.

Fig. 1 -- further illustrates an assembly of an in-house pipeline connected to the public low-grade water pipeline separate from drinking water.

Fig. 1 -- further illustrates an assembly of a drinking water in-house pipeline definitely separate from the low-grade water supply pipeline.

Fig. 1 -- further illustrates that there is no drinking water pipeline getting into the toilet bowl.

Fig. 1 -- further illustrates a new creation of a water reservoir for low-grade water having a bottom just a few inches above the top of the toilet tank.

Fig. 2 -- illustrates that the water supply from the water deep-well is delivered by a pipeline assembly separate from the drinking water pipeline.

Fig. 2 -- illustrates a plurality of additional deep-wells around the community to supply subterranean water into the recycled water distribution pipelines.

Fig. 2 -- illustrates a public drinking water pipeline provided side-by-side with the public recycled water pipeline getting into the house.

Fig. 3 -- illustrates a storage/digestion/filtration tank that cleans the waste water from the bath and from the laundry and recycle it into the toilet water tank.

Fig. 3 -- further illustrates a second water tank, wherein, the water supplied by the deep-well is treated to be used in the bath and in the laundry.

Fig. 3 -- further illustrates a second water pump, having check valve, used to bring out the recycled water from the filtration tank and up to the toilet tank.

Fig. 4 -- illustrates a detailed drawing of a newly designed one-way/check valve.

Detailed Description Of The Invention

0001 In support to the advocacy and to the missions of this invention, the following new configurations, new embodiments, and new structural/mechanical devices are created to provide the most appropriate technology, which can be more understood by further reading the following descriptions of the drawings, to wit:

0002 Fig. 1 -- illustrates a new embodiment for a new innovative water supply system wherein it is imperatively emphasized that a water deep-well 2 having a water pump 6, -- the materials and process of construction of which are already for sale/available in the open market and no need to invent it in this presented invention, --- is constructed within the property limits of each and every house/building/facility of habitation 28 *that are particularly dependent upon a public water supply --- usually called Metropolitan Water District,* --- for the primary purpose, as it is hereby imperatively emphasized, (1) to prevent the clean drinking water from being used to flush/clean the toilet and (2) to produce and bring subterranean or underground water to each house/facility for use to fill up the toilet tank 10 which flushes the toilet bowl 12, and some of the extra subterranean water is used to irrigate the gardens and plants in and around the house/facility 28 which include golf courses and parks. The pump 6 pulls up the subterranean water from underground deep-well 2 and push up same water thru pipeline 14 to fill up the elevated reservoir 8 which supplies the toilet tank 10. *It should be noted at this point that one good profoundly emphasized reward out of this new idea is that the un-pressurized reservoir 8 is just a little bit few inches higher elevation than the toilet tank 10, at low water head, such that a very minimal energy is spent by the pump 6 to push up the subterranean water to fill up the reservoir 8,* because the toilet tank 10 requires only a few inches of water head from tank 8 to make tank 10 filled up by force of gravity. It should be that savings is the most important mission of this invention. It is also imperative to observe that there is a provision to bring-in supplemental subterranean water or recycled water thru the pipeline 4 from sources outside the

building property limits, such as from the neighbor, and/or from the municipal deep-wells and from the municipal/public sewer treatment plants that produce the recycled water, just in case the deep-well 2 fails to function. The gate valve 5, which can be also a one-way check valve, is provided to prevent backflow of the water down into the deep-well 2 and also to prevent the recycled water supplied by pipe 4 from flowing down/wasted into the deep-well 2. The gate valve 7 is also provided to closed/stop the recycled water from getting into the house when the deep-well 2 is working good enough. The gate valve 5 and 7 are opened when running the deep-well 2 and pump 6 when operating to allow the extra subterranean water from the deep-well 2 to get into the supply pipeline 4 to supply/sell water into the municipal/city grid or to sell water into the neighborhood in order to enable the private sector to earn money out of their investments in constructing their own facility water deep-well 2. The city and the neighborhood must pay the private sector who sell their extra water outside their private facilities. The waste water from the toilet bowl 12, after flushing the toilet, drops down thru and under the house floor 26 by way of the sewer pipeline 16 which collects all the waste water from the toilets, the kitchen and from the washing machines and outfalls to the main sewer pipeline 16 under the streets. The pipeline 18 is provided to independently bring to the house/buildings the clean drinking/potable water to the house or building. It can be observed that drinking pipeline 18 is clearly made separate and distinct from the subterranean water pipelines 4 and 14 getting into the toilet to make sure as emphasized that there is no mistake with the drinking water getting into the toilet. It is clearly shown in this drawing that the clean drinking water supplied by pipeline 18 gets only to the kitchen sink 20, to the shower 24, to the washing faucet 22, and to the cloth washing machine only. The wastewater from the kitchen, shower, and washroom all drop down to and collected by the sewer pipeline 16. Note that it should be observed and be born in mind that the materials and methods for the assembly of the pipelines are all prior arts, hence, are no longer to be invented and therefore are supposed to be elementary and available in the open market.

0003 **Fig. 2** -- illustrates a new embodiment of a water supply system, wherein, it is imperatively emphasized that a water deep-well 2 having a water pump 6 is constructed within the yard of, or under, the buildings 28 *that are particularly depended upon the public water supply usually called Metropolitan Water District* --- in order to definitely supply subterranean water into the house 28 thru pipeline 14 by which to flush the toilet bowl -- to save the clean drinking water. This embodiment clearly shows that the subterranean water supply pipe 14 is distinctly and imperatively separated from the drinking water supply pipe 18 and the toilet is separated/isolated by a wall 19 to make sure imperatively to prevent mistakes wherein the drinking water is mistakenly used to flush the toilet. As illustrated, the standard system of drinking water in high density communities comes from an open river which is an outfall of sewer/waste water from upstream cities/communities, same river water is stored on an open lake 46, then thru a filtering/sterilizing and processing chamber 44, then thru the elevated storage tank 42 and finally thru the drinking water delivery pipeline 18, by which apparatus, it is clearly shown that it is separate and distinct from the subterranean water supply pipeline 14. *In standard practice, which does not need to be shown here, the drinking water pipe 18 would have been extended into the toilet tank.* Further illustrated is the processing and recycling system for the sewer/waste water for the primary purposes of sanitation, wherein, all the sewer/waste water from the house/facility 28 are collected by the sewer pipe 16 and pushed up by the sewer pump 17 to the digestion chamber 30 where the solid particles are eaten and broken-up by bacteria to produce biogas fuel which is disposed of to fuel the engines by pipeline 36 to recover energy spent for driving the sewer pumps 17 and the water deep-well pumps 6. The digested sewer is then pumped into the filtration and sedimentation chamber 32 wherein all the solid particles are finally removed from the sewer water. Some of the partially cleaned water is discharged thru the pipeline 40 to run a hydroelectric power generator at a low elevation to recapture energy to drive the sewer pumps, then finally, same water is discharged to the sea or into a low level sink hole into the ground for storage

and to become part of the subterranean water. Some of the partially cleaned water is elevated into the sedimentation/filtration pond/chamber 34 and stored thereat as a recycled water to be sent back to the habitation facilities 28 by means of the pipeline 4. In the efforts to maximize conservation of the clean drinking water, there is a provision to augment the quantity of the recycled water by means of a plurality of municipal owned water deep-well 2A having water pump 6 which are constructed down to the subterranean aquifers to supply partially clean subterranean water into the recycled water storage/ sedimentation tank 34. Some of the recycled water not consumed by the houses/buildings 28 are discharged to the irrigation pipelines 38 to irrigate farms outside the city and also to irrigate the vegetation along the freeways. It should be understood that the standard materials for the pipelines, for the deep-wells, and for the supports/connectors to the assembly of the pipelines are already elementary and are readily available in the open market and should not be invented in this invention. The methods of assembly are also elementary. Readers and users of this invention are supposed to be skilled in the art.

0004 **Fig. 3** -- illustrates the most appropriate new embodiment designed to maximize the effectiveness of the mission *to conserve the clean drinking water by recycling the water used in bathing and in washing clothes and re-use same water to flush/clean the toilet*, wherein, **Fig. 1** is further improved by an additional incorporation of a digestion/sedimentation/filtration/storage tank 3-11-13-15 built at just below every floor level within the property limits of each building/facility, wherein, the waste water from the shower 24 and the waste water from the laundry machine 9 are collected by the drain pipe 23 which deposits the waste water into the digestion/sedimentation chamber 3 where the organic particles are broken/eaten by bacteria while the minerals settle down to the bottom of the chamber 3. Manholes are provided to clean the whole recycling device. The siphon 25 transfers the partially cleaned water from chamber 3 into the next digestion/sedimentation chamber 11 to further clean the water. A similar siphon further transfers the water from chamber

11 into the filtration-storage chamber 13 where the water is further cleaned by passing thru the sand filter 15 and where same water is stored down below the sand filter 15 to serve as a reserved recycled water. The second water pump 17 installed on every floor pulls the processed/recycled water thru the foot check valve 33, up thru the suction pipe 29, pushes same water thru pipe 21 and up thru the second check valve 33, further pushes same water up thru pipe 14 and finally deposit same water into the low-grade water storage un-pressurized reservoir 8 where it is reserved for the toilet tank 10 for flushing the toilet. The foot check valve 33 is very necessary to maintain the water inside pipe 29 in order that the pump 17 is always primed ready to move up the water. The second check valve 33 up the pipe 21 is also necessary to prevent water backflow in pipe 21 if the pump 17 becomes leaking.

0005 In the efforts to further save energy, as among the highlights of this invention, the following strategies had been created:

- (1) the low-grade water reservoir 8 is not pressurized, hence, the water pump will just work on a low-head pressure until this reservoir 8 is full;
- (2) it should be noted that the recycling device 3-11-13-15 is just below every floor level/surface and the low-grade water reservoir 8 is just a few inches above the toilet tank 10, — therefore, it is clearly illustrated that the low water-head between the tank 13 to the un-pressurized reservoir 8 is just about a maximum of 6 feet which means that the second water pump 17 will just be spending a very minimal energy against low-head pressure in pumping, --- which means a lot of energy/money savings to the advantage of the consumer/house owner;
- (3) *It should be observed further that the un-pressurized reservoir 8 is provided with a toilet float valve 8A to stop the subterranean/recycled water from getting-in further when the reservoir 8 becomes full in order to automatically make the subterranean/recycled water move up to a similar next reservoir 8 at the second and the succeeding upper floors thereafter thru the upward extension of the delivery pipe 14, hence, float valve 8A will save a lot of energy by not*

requiring the water pump 6 to work against an otherwise steady high water pressure required by the top floor of the building in the process of filling up all the various reservoirs 8 from ground floor to the top floor;

- (4) the switch 17A, controlled by a floating actuator 13A, is provided to stop pump 17 when the water in tank 13 has run down too low, and at the same time notifies the deep-well pump 6 thru switch 6A to take over in supplying reservoir 8 and also stops deep-well pump 6 when pump 17 is running, additionally, switch 8B stops pump 17 when reservoir 8 becomes full and starts pump 17 when reservoir 8 runs down to a point of low level;
- (5) likewise, the switches 8B and 35C will run the deep-well pump 6 when the water in reservoir 8 and in second storage tank 35 gets down to a point of low level;
- (6) the control gate valves 5, 5A and 7A are replaced and made up of one-way check valve 33 to provide automatic upward movement of the deep-well water from pump 6 as soon as the switches 8B, 6A and 35C kick-in, and it is also imperative that a one-way valve 33 is installed at the entrance of every reservoir 8 in all floors of the building to prevent siphon backflow of water;
- (7) the rain water is collected from the roof and deposited into a plurality of interconnected drums/tanks that are elevated just a few inches above the level of the reservoir 8 so that the rain water in the drums just automatically transfer by gravity to fill up reservoir 8 to flush the toilet without pumping energy.

0006 **Fig. 3** -- further illustrates a further improvement of **Fig. 1**, wherein, additionally, in maximizing the use of the subterranean water for bathing and washing clothes --- in order to minimize consumption of the clean drinking water, a second storage tank 35, *having a float- valve 35A that regulates the air pressure trapped at its upper chamber*, is incorporated within each house/building. As soon as the float valve 8A stops the water from getting into the un-pressurized reservoir 8, the subterranean water being supplied by the deep-well 2 is automatically deposited into the second storage tank 35 thru pipe 14A by opening both control valves 5A and

7A simultaneously or by making these two valves into check valves. The second storage tank 35 is designed for purposes of sedimentation/chlorination and other water cleaning/treatments of the deep-well water, *in just enough pressure, to save energy, controlled by a float valve 35A and by a trapped compressed air 35B*, in preparation to be used for the shower 24 and for the cloth washer 9. At least the water from the deep-well 2 is just the same clean quality as the water from the municipal lake reservoir, hence, it is acceptable for bath water after it has been chlorinated. The valve 5A and the valve 7 must be closed to prevent the recycled water from the municipal pipe 4 and home recycle pipe 21 to mix up the deep-well water in times when filling up the second storage tank 35. With valve 24A and valve 9B closed, the water from the second storage tank 35 is discharges into the shower 24 by opening the valve 24B. As the low-grade deep-well water from the storage tank 35 flows across valve 24B, the DC electric current electrocution device 24C is simultaneously set on to create/pass electric current thru the water a few inches along the water current inside the pipe to kill all the viruses in the low-grade water before it is used for bathing. Additionally, the water heater 24D is added to further sterilized by heating the deep-well water to at least 110 degrees centigrade before it is used in bath in shower 24. An optional cooling tank may be added such that portion of the boiled water passes thru said cooling tank and to be mixed with the hot water at the shower head--- in order to cool down to a warm bath temperature. In this way, it is sure that all the water used in bathing had been boiled or sterilized. The second storage tank 35 also supplies low-grade deep-well water into the cloth washing machine 9 by opening the control valve 9B and by closing the control valve 9A to prevent the clean drinking water from the municipal pipe 18 from getting into the cloth washer 9 thru the clean pipe 22. When there is no water available in second storage tank 35, then valves 9A and 24A are opened in order to used the municipal clean drinking water from pipe 18 for purposes of bath and washing clothes.

0007 Additionally, in the efforts to minimized the used of the clean drinking

water, the rain water from the roofs and run-off from the ground are collected by pipe 23A to get the rain water deposited into the recycling device 3-11-13-15, -- for purposes of flushing the toilet. The sand filter 15 is being wash-cleaned by reversing the flow of the water inside the chamber 13 to pass thru the sand filter upward thereby the accumulated mud floats and get washed out off the sand filter 15, and then the resulting muddy water exits by gravity onto the canal 27 where the waste water seeps into the ground while the mud gets dried under the sun. The dried mud may be used for a fertilizer. Other parts shown but not discussed here had been discussed in Fig. 1 and are understood to be functionally necessary.

0008 Fig. 4 -- illustrates a detailed drawing for a new one-way check valve 33 that allows only one direction of fluid flow upward in the suction pipe 29 in order to keep the water pump 17 always primed with water and to stop backflow of water going up the delivery pipe 21 into storage tank 8 all in Fig. 3. As shown, the part valve 31 is the only one moving part, the downward tail 37 which passes thru two controls holes in two evenly spaced bars 37a and 37b attached to the inside walls of and across the housing pipe 39 below the part valve 31. Same part valve 31 is provided with an upwardly protruding control short-head rod 41 centrally attached to the top of the part valve 31 serving as a bumper against the control head-board 43 to stop the part valve 31 from moving too far up and blocking the water going upward above it and to prevent the tail from getting out of the control holes. The head-board 43 is centrally attached by connecting rods to the inner wall of the housing pipe 45 that holds the valve set block 47. The housing pipe 39 is attached to the bottom of the valve set block 47.

0009 It should be noted that the materials and the support and connector devices used to construct and assemble including the procedures to make the above new devices and apparatus do not have to be invented because these materials and procedures are already elementary and are readily available in the open market. It



should be understood further also that the reader of this invention is supposed to be a person skilled in the art, hence, should be able to devise a method to easily assemble the apparatus or to make these invention.

0010 In order to successfully attain the objectives of this invention with high discipline, it is imperatively emphasized that an ordinance or a law be enacted to maximize conservation or minimize the usage of the clean drinking water and to require the maximum usage of recycled water and of the subterranean water to flush the toilet. The new law must strictly require under penalty the construction of water deep-wells 2 & 2A, and must require construction of a separate special supply pipeline assembly for the toilets. It is also imperatively emphasized that a law is enacted to strictly enforce a rationing at a certain fixed quota limiting the allocation of drinking water for every listed or estimated number of residents in each household or each building at a certain quantity of gallons per person living/using the building in a bi-weekly or monthly basis or in the most appropriate periodic basis, — by forcibly collecting triple price of the drinking water consumed during the period/month when the household surpassed its drinking limit, under penalty of law if not paid. *It should also be noted that since the subterranean water produced by the consumers saves the public water supplier from otherwise excessive expenses in the construction of additional dams, reservoirs, aqueducts, and desalination plants to meet the increasing demand, a law must be enacted strictly requiring the Metropolitan Water District to pay 50% of the construction cost of private water deep-wells, recycling devices, water pumps, storage tanks, and appurtenant pipe assembly to the toilets, as a rebate to every house/building owner who construct their own water conservation system. Rebates must also be paid to those who bought new homes that are built having above presented water conservation devices because of the value added to the price of the new house. No rebates is paid to the builders because they pass-on the cost to the homebuyer. It should be further understood that water from rivers should be used in agriculture instead of flushing the toilet.*